Software Engineering Technology FY 2002 Call For Proposals

Center for Space Mission Information and Software Systems

General Information

The Software Engineering Technology (SET) Element within the Center for Space Mission Information and Software Systems (CSMISS) announces its third annual call for proposals for research and development in software engineering technologies relevant to improving the reliability and capability of JPL developed mission software. **Proposals must be submitted electronically no later than August 31, 2001**. Please contact Chi Lin or Charles Norton if you have any questions about this call:

Chi Lin
E-mail: Chi.Y.Lin@jpl.nasa.gov
Phone: 818-354-7209

Charles D. Norton
E-mail: Charles.D.Norton@jpl.nasa.gov
Phone: 818-393-3920

As always, proposals exploring software engineering technologies that also demonstrate relevance to JPL mission goals are encouraged. This call is also available at the CSMISS web site: http://csmiss.jpl.nasa.gov/

Areas of Interest

Proposals that show a potential to improve the quality and/or reliability of JPL mission software are of primary interest. Broad areas for solicitation include:

- Tools and techniques to aid software verification, validation, and defect prediction (such as model-based engineering).
- Decision analysis tools and techniques to support architecture and/or design tradeoffs.
- Tools or techniques to support software product line architectures.
- Advanced programming languages for software development.
- Tools or techniques that enhance process automation.
- Reusable software components and/or frameworks.

Proposals in other areas may also be considered, consistent with the overall intent of this call. The proposed technology, or technologies, should be at an intermediate level of maturity that might be described as "applied research and application".

Proposals for work of the following nature will not be considered:

- Hardware, facilities, or other work not focused on software engineering.
- Technologies, tools, or techniques not applicable to mission software development.
- Basic research (i.e. creation of fundamentally new tools or techniques).

♦ Routine application of existing software technologies, tools, or techniques.

Selection/Evaluation Criteria

A review board, approved by the SET Element Leader, will select the winning proposals. Selected proposals will be funded at levels from $50K to a maximum of $80K per proposal.

The review board will evaluate proposals according to the following criteria:

1. The potential impact the proposed work may have on one or more JPL missions.
2. Alignment of the proposed work with the overall intent and areas of interest identified in the proposal call.
3. Technical merit and feasibility of obtaining the planned result within the cost and schedule proposed.
4. Technical accuracy of the proposal and strength of the submission team.
5. Statement of endorsement by a representative of one or more JPL projects.

Examples of winning proposals can be found at:
http://csmiss.jpl.nasa.gov/internal/set/winners-2000.html
http://csmiss.jpl.nasa.gov/internal/set/winners-2001.html

Proposal Format and Content

Proposals must be submitted electronically in Microsoft Word or PDF format as a single document according to the format specified in the following pages. The proposal must be attached to an e-mail message with the subject **Response to SET CFP** addressed to the following:

> **Dr. Charles D. Norton**
> SET Element Deputy Manager
> Center for Space Mission Information and Software Systems
> E-mail: Charles.D.Norton@jpl.nasa.gov

The following information is required in the following order:

1. A Cover Sheet including the names, organization numbers, phone numbers, and e-mail addresses of all proposal team members with all applicable signature approvals. University collaborators must provide the name of the university involved.

2. An Abstract Sheet summarizing the content of the proposal

3. The Proposal Body limited to five (5) single spaced pages including any figures, tables, and diagrams.

4. A Budget Sheet that recognizes proposals will be supported by burden funds.

The proposal package is limited to eight (8) pages. Submissions deviating from this format run the risk of rejection without consideration of their technical merit.

Key Dates

- Proposal Call Issued: **August 6, 2001**
- Proposals Due: **August 31, 2001**
- Notification of Awards: **September 24, 2001**
- Commencement of Work: **October 8, 2001**

Suggestions for Writing Winning Proposals

Responding clearly, accurately, and completely to the proposal evaluation criteria often makes the difference between a good proposal and a winning proposal. This includes providing a clear and compelling argument describing the relevance and importance of your work in a way that allows reviewers to confidently support your ideas. This means the benefit of your work must stand out, as well as your ability to perform the research you have proposed. Collaboration with others within and/or outside JPL is encouraged as it promotes outreach and broadens the experience base applied to the proposed work.

Suggested SET Proposal Body Outline

Introduction and Key Objectives
Briefly give an overview of the subject matter, problem statement, rationale, and the key objectives of the proposed work.

Significance and Technical Approach
Describe what is significant and important about the work along with how the objectives will be achieved.

Specific Benefits to JPL Projects
Describe what is beneficial about this work for JPL's project interests.

Equipment and Facilities Required (if any)
What equipment (software, hardware, etc…) is required and mention any details about its availability.

Schedule and Deliverables
Provide a specific task plan and indicate milestones for deliverables.

Endorsements and Potential for Follow-on Funding
Provide specific endorsement statements from potential users/projects describing how the proposed work is beneficial to their missions or technology development activities. Also specifically state the potential for future funding along with the most probable funding sources.

References
Supply appropriate, and verifiable, references for literature cited in the proposal.

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JPL

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Proposal Cover Sheet

(Proposal Title)

(Submission Date)

Principal Investigator: (Dr., Mr., Mrs., Ms.) First, Middle, Last
Section #, Mail-Stop, Phone Number
Email Address

Co/Univ.-Investigator: (Dr., Mr., Mrs., Ms.) First, Middle, Last
Section #, Mail-Stop, Phone Number
Email Address

Co/Univ.-Investigator: (Dr., Mr., Mrs., Ms.) First, Middle, Last
Section #, Mail-Stop, Phone Number
Email Address

Approval

Task Lead's Supervisor: (Dr., Mr., Mrs., Ms.) First, Middle, Last
Section #, Mail-Stop, Phone Number
Email Address

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Proposal Abstract Sheet

Proposal Title: (Proposal Title)

Principal Investigator: (Dr., Mr., Mrs., Ms.) First, Middle, Last
                             Section #, Mail-Stop, Phone Number
                             Email Address

Abstract

The abstract body should be a short summary of the proposal content. Address the problem and technical context of the task as well as the technology applied and the benefits to JPL if successful.

The abstract is limited to this page only.

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Proposal Body Sheets

Introduction and Key Objectives

The proposal should be written using 12 point times font and limited to the margins specified in this example. No specific format is required, but it is suggested that submissions consider the proposal guidelines.

Describe the subject matter, problem statement, rationale, and the key objectives.

Significance and Technical Approach

Describe what is significant and important about the work along with how the objectives will be achieved.

Specific Benefits to JPL Projects

Describe what is beneficial about this work for JPL's project interests.

Equipment and Facilities Required (if any)

What equipment (software, hardware, etc…) is required and mention any details about its availability.

Schedule and Deliverables

Provide a specific task plan and indicate milestones for deliverables.

Endorsements and Potential for Follow-on Funding

Provide specific endorsement statements from potential users/projects describing how the proposed work is beneficial to their missions or technology development activities. Also specifically state the potential for future funding along with the most probable funding sources.

References

Supply appropriate, and verifiable, references for literature cited in the proposal.

This section is limited to five (5) pages including all graphics and references.

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Proposal Budget Sheet

The cost, in dollars, of doing the work, broken down by JPL labor, procurements, travel, and services should be stated here. (JPL burden monies must be included.) Sources of other identified co-funding for the proposed work should be included as well. Please state if follow-on funding will be needed including potential sources of that funding.

Proposal Cost Items	Proposal Cost Plan
JPL Labor	$xx,xxx
University Labor	$xx,xxx
Procurements	$xx,xxx
Travel	$xx,xxx
Services	$xx,xxx
TOTAL	**$xx,xxx**

Details

Please specify details of procurements, travel, and services in this section.

The budget sheet is limited to this page only.

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Proposal Checklist

- ❏ 1. COVER SHEET
- ❏ 2. ABSTRACT SHEET
- ❏ 3. BODY SHEETS
- ❏ 4. BUDGET SHEET
- ❏ 5. ELECTRONIC SUBMISSION

The completed proposal must be submitted electronically to the following with the subject **Response to SET CFP** to:

Dr. Charles D. Norton
SET Element Deputy Manager, CSMISS
E-mail: Charles.D.Norton@jpl.nasa.gov

The <u>deadline</u> for submission is **<u>August 31, 2001</u>**. Submissions received after that date run the risk of rejection without consideration of their technical merits.